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Montana. Legislature. Office of the Legislative Auditor
Performance audit report

Office of the Legislative Auditor

State of Montana

Report to the Legislature

April 1994

Performance Audit Report

Montana Lottery Security

Department of Commerce

This report contains recommendations for improvements to security controls at the Montana Lottery. The recommendations address:

- Improving controls over warehouse access.
- Improving the process for evaluating test results of Montana Cash drawing balls.
- Improving computer security controls.

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April 1994

The Legislative Audit Committee
of the Montana State Legislature:

This is the report of our performance audit of security at the Montana Lottery. The report contains recommendations for improving security over Lottery operations. The Lottery response is contained at the end of the report.

We wish to express our appreciation to the staff of the Lottery for their cooperation and assistance.

Respectfully submitted,

Scott A. Seacat
Legislative Auditor

Office of the Legislative Auditor

Performance Audit

Montana Lottery Security

Department of Commerce

Members of the audit staff involved in this audit were Dave Gould, Joe F. Murray, and Ken Erdahl.

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Report Summary

Introduction

In November 1986 the people of Montana passed Legislative Referendum 100 establishing a state lottery. Lottery tickets sales began June 24, 1987 with an instant scratch game being the first lottery game offered to the public. The Lottery has since increased the number of lottery games by adding three on-line lotto games: Powerball, Montana Cash and Tri-West Lotto. Ticket sales for Powerball began in April 1992 replacing Lotto*America. Ticket sales for Montana Cash began in May 1991. In February 1994, the Lottery introduced Tri-West Lotto. Tri-West Lotto was not included in our review because it was not operational until after our audit work was completed.

Section 23-7-411, MCA requires the Legislative Auditor to perform a comprehensive security audit every two years on all aspects of Montana Lottery security. This is the third security audit completed since the inception of the Lottery in 1987.

We found many areas continue to have sufficient security controls as determined during previous security audits. Areas with sufficient security controls include: instant games; validation of winning tickets for instant and on-line lotto games; background investigations of Lottery employees; controls over instant and on-line lotto game tickets and cash at special events; destruction of unsold instant tickets; Montana Cash and Powerball drawings; and performance appraisals for security-related staff.

General Security Procedures

We identified some areas where general security procedures could be improved. We noted security could be improved over the Lottery warehouse and in the procedures used in evaluating test results for disqualified Montana Cash ball sets.

Maintain the Control System Which Limits Warehouse Access

During our security audit we observed employees other than security and warehouse personnel entering the Lottery warehouse. These employees have not been authorized unrestricted access to the warehouse by the Lottery's security department. All access was made through a set of double-doors which lead from the Lottery's office area directly into the

warehouse. We noted an effective control system was not in place controlling access through these doors.

Lottery officials responded to our concern by installing new locks on the doors which automatically lock when the double-doors are closed. Officials told us only security and warehouse personnel will be issued keys to the doors. We recommend the Montana Lottery maintain this control system which limits warehouse access to authorized employees.

Montana Cash Ball Set Test Results

To ensure the integrity of the Montana Cash drawing and that numbers are randomly selected, the Lottery's security department has developed drawing procedures which are followed during each drawing. Five different drawing ball sets exist and procedures require drawing officials to randomly select two ball sets for the drawing. The ball sets used to conduct Montana Cash drawings consist of ping-pong balls which are numbered from one through thirty-seven. Before the Montana Cash drawing takes place, drawing officials conduct four pretests of the primary ball set. If the same number is selected three times, a fifth pretest is required. If this ball comes up again during this test, the ball set is disqualified and is replaced with the secondary ball set. Disqualified ball sets are not eligible for another drawing until tested by the Weights and Measures Bureau of the Department of Commerce.

The Weights and Measures laboratory provides information regarding how much the total weight of a disqualified ball set has changed and also provides documentation indicating the weights of each individual drawing ball.

We found that although the Lottery's security department can determine if the weight of an entire ball set has changed, it does not have a process for monitoring the documentation for the individual drawing balls to determine if the weight for the balls has changed. When test results are received from Weights and Measures the documentation is filed away and nothing more is done with it. In addition, the security department has not established a guideline for acceptable weight ranges for the drawing balls.

We recommend the Montana Lottery create a guideline for acceptable weight ranges for the Montana Cash drawing balls. In addition, the Montana Lottery should monitor and document the information provided by Weights and Measures to determine if weights fall within this acceptable weight guideline.

Computer Security Controls

Computer security controls protect assets and limit losses from three types of basic threats: intentional acts such as fraud or sabotage; disasters such as water or fire damage; and human errors and omissions such as data entry errors. We noted several weaknesses in computer security controls for the Stratus and Automated Wagering International (AWI) computer systems.

Stratus System Physical and Environmental Controls

We evaluated physical and environmental controls over the Stratus computer system. These controls protect the system from potential disasters such as fire or water damage. During the course of our examination, we noted the following areas where the Lottery could improve environmental controls over its computer facility.

Water Lines Above the Computer Room

A sink with a charged water line is located directly above the computer room, If this line were to break, the water could cause extensive damage to the Lottery's computer system. Water lines above the computer room should either be moved or the flow of water completely eliminated. We recommend the Montana Lottery eliminate the flow of water in the water lines above the computer room.

Fire Extinguisher and Smoke Alarm Need to be Tested

The computer room is protected from fire damage through an early warning smoke alarm, and a hand-held halon fire extinguisher. We found the smoke alarm was not included in regular testing and the fire extinguisher testing was past due. Regularly scheduled testing of the fire detection and suppression devices should be done to ensure computer equipment is protected from fire damage. Testing of both the smoke alarm and the fire extinguisher was overlooked by security officials.

We recommend the Montana Lottery develop a checklist to assist security staff in testing all security devices, including the smoke alarm and fire extinguisher.

Stratus System Access and Organizational Controls

During the course of our audit we reviewed access and organizational controls over the Lottery's Stratus computer system. This review included: evaluating user access provided to various computer operations, evaluating the Lottery's disaster recovery plan, and determining the level of internal computer security reviews conducted by the Lottery to ensure security exists over its computer system. Improvements are necessary in access and organizational controls.

Retain Documentation Supporting Computer Program Access

Computer programs are instructions defining operations to be performed by a computer. Lottery security policies and procedures require all requests for computer program access be documented using an authorized "Request for Program Access" form. We found "Request for Program Access" forms existed for access requests by new employees. However, these forms generally did not exist in those cases where existing employees requested an access change or update for the system. Lottery security officials indicated they receive these forms, but do not retain them once the access is changed. We recommend the Montana Lottery retain documentation authorizing access to Stratus operating and application files.

Reviews of ILS Access Rights Need Improving

Lottery employee access to the Stratus computer system should be limited to data files and programs needed in the performance of their duties. We found three employees with unnecessary access rights to Instant Lottery Software (ILS) applications. Job duties for these individuals did not require access.

Access to data files and programs in excess of job duties provides opportunity for unauthorized manipulation of ILS data. Security personnel told us they have not established a system for conducting reviews of employees access and perform reviews when they have time. We recommend the Montana Lottery establish a system for reviewing employee access privileges to

ILS applications and document these reviews. The Montana Lottery should also revoke access privileges to ILS applications for those users not requiring access in the performance of their job duties.

Develop a Disaster Recovery Plan

Backup and recovery planning consists of those activities undertaken in anticipation of circumstances which could result in complete or partial shutdown of the Lottery's Stratus computer system. Examples include fire, flood, earthquake, and vandalism.

Although the Lottery stores backup data offsite, it does not have a formal, tested backup and disaster recovery plan or an alternate site agreement for the Stratus system. Without a disaster recovery plan or alternate site agreement, a major disruption in computer operations could adversely affect Lottery operations.

We recommend the Montana Lottery develop a formal, tested backup and recovery plan that includes an alternate site or equipment replacement agreement.

Lottery Retailer Filing and Data Input Procedures

We reviewed the accuracy of retailer information found on the Lottery's computer system by comparing retailer information found on the computer system to the supporting documentation maintained in the hard copy retailer files. During our review, we identified areas where the Lottery could improve its procedures for maintaining supporting documentation and inputing retailer information into its computer system. The following sections discuss improvements that should be made.

Security Staff Should Review Retailer Files

Lottery policy requires specific forms and information be contained in the hard copy retailer files prior to issuance of a license to a retailer to sell Lottery tickets. Of 22 retailer files tested, 19 (86 percent) did not contain all hard copy information required by Lottery policy. Consequently, we were not able to determine if the information on the system is accurate. We also noted several instances where changes were made to retailer

information on the computer system. However, in most cases the retailer files did not contain the required authorized documentation supporting these changes.

In those cases where documentation was in the retailer files, we found instances where information on the computer system did not match the supporting documentation. Information we found which was incorrect on the computer system included: retailer names, phone numbers, and addresses; tax ID numbers; and lottery regional numbers. In addition, we found two retailers who were terminated, but were still shown as active on the system. The security department is responsible for the accuracy and completeness of the hard copy retailer files.

We recommend the Montana Lottery perform a review of hard copy retailer license files prior to license issuance in accordance with internal security policies. The Lottery should also establish a policy for centralized review of all changes to hard copy retailer files and information on the computer system. A review of the accuracy of existing hard copy retailer files and computer information should also be conducted.

Computer Security Review Should be Performed

Section 2-15-114, MCA, specifies state agencies are responsible for ensuring security for all their data and information technology resources. This law also requires state agencies ensure internal evaluations of the security program for data and information technology resources are conducted.

In the two prior security audits, we recommended the Lottery perform these reviews. At the completion of our 1989 audit, the Lottery formed a data processing security group in response to our recommendation. Although we found the group occasionally meets to discuss needed changes relative to data processing, the accomplishments relating to computer security have been minimal. We believe group activities should emphasize more intensive security evaluations

We recommend the Montana Lottery develop for the data processing security group a mission and specific goals and objectives which include conducting on-going comprehensive

security reviews of the computer system. The Lottery should also develop a written plan on how to meet the mission and these goals and objectives.

Automated Wagering International (AWI) Computer Operations

We visited AWI in Olympia, Washington, to review the security over the computer system which administers operations for Montana's on-line Lotto games.

AWI Disaster Recovery Plans Should Include the Montana Lottery

We reviewed AWI's disaster recovery plan and found no mention of the Montana Lottery as part of the plan. We also noted AWI's disaster recovery does not include a formal agreement for a specific alternate site for computer operations to resume in the event of a disaster.

Since the Montana Lottery is not included in AWI's disaster recovery plan, there is less assurance the Lottery would be included in any disaster recovery efforts undertaken by AWI. In addition, not having a specific site designated as an alternate site for computer operations to resume does not provide assurance Montana's on-line Lotto games would be restored by AWI on a timely basis.

We recommend the Montana Lottery require the AWI disaster recovery plan include Montana Lottery operations and include an agreement for establishing an alternate computer facility.

On-Line Management Terminal Access Rights are not Approved and Reviewed

The On-Line Management Terminal (OLMT) system allows direct communication between the Montana Lottery and AWI's computer system located in Olympia, Washington. We reviewed the OLMT system access rights granted to Montana Lottery and AWI personnel. We found nine AWI employees with access rights to OLMT applications beyond the requirements of their position descriptions.

Access rights to applications in excess of job duties increases the potential for manipulation of OLMT retailer files and unauthorized changes to the game files. We found no process exists for Montana Lottery security officials to approve access

rights to OLMT applications for AWI employees based on the requirements of their position descriptions. There is also no procedure for Montana Lottery security officials to periodically review access rights to OLMT applications.

We recommend the Montana Lottery approve AWI employee access rights to Lottery OLMT applications based on the requirements of employee position descriptions. We also recommend the Montana Lottery review the reasonableness of OLMT access on a periodic basis.

External Evaluations of AWI's Computer System

We found the Montana Lottery is not conducting or requiring an external review of AWI's computer operations as they relate to Montana Lottery operations. We have identified security weaknesses which require improvement in some areas of AWI's computer operations. These weaknesses occurred as a result of Montana Lottery security officials not formally monitoring AWI computer operations as they relate to the Montana Lottery.

We recommend the Montana Lottery establish an external evaluation process to ensure the security of AWI's computer system.

Computer Security Training

Computer systems are the center of Montana Lottery operations. Everything the Lottery does associated with its instant and on-line lotto game relies upon the secure operation of a computer system. The Lottery's director of security and investigator have been responsible for the security over Lottery operations, including computer security, since the Lottery's inception in 1987. However, we found these individuals have received a minimal amount of training related to computer security even though their position descriptions require an understanding of computer security.

Section 23-7-212, MCA, reflects the importance of having security personnel who are well-trained in all areas of Lottery security including its computer system. This law requires the director of security to be knowledgeable in computer security and be qualified by experience and training. Additionally, the

director of security has designated the investigator as the system administrator over the Lottery's computer system. Therefore, it is also essential the investigator have appropriate knowledge of computer security requirements through appropriate computer security training.

We recommend the Montana Lottery establish and implement a computer security training plan and program for security personnel.

Chapter I - Introduction

Introduction

Section 23-7-411, MCA, requires the Office of the Legislative Auditor to perform a comprehensive security audit every two years on all aspects of Montana Lottery security. This is the third security audit completed since the inception of the Lottery in 1987.

Audit Objectives

The objectives of this audit were to:

1. Determine the status of audit recommendations made in our prior security audits.
2. Determine if the building security system ensures security of the Lottery building and its contents.
3. Determine if controls exist at special events to ensure security over instant tickets, lotto terminals, and cash at these events.
4. Determine if the Lottery is completing background investigations of Lottery employees and retailers.
5. Evaluate management controls relating to security operations.
6. Determine if the Lottery's Stratus computer system, Instant Lottery System software, and on-line lottery computer system are secure.
7. Determine if Lottery operations are in compliance with state laws and administrative rules related to security.

Statement of Privileged and Confidential Information

Section 23-7-412, MCA, provides: "Specific audit findings relating to security invasion techniques are confidential and may be reported only to the legislative audit committee, the director of the lottery, the commission, the attorney general, and the governor." Previous audits had identified problem areas requiring a confidential audit report be issued due to the sensitive nature of these areas. However, we did not identify any areas requiring confidentiality during this audit.

Audit Scope and Methodology

The audit was conducted in accordance with governmental auditing standards for performance audits. Audit work focused on all aspects of security over Lottery operations and related management controls. Section 23-7-411, MCA, requires our office to review specific areas relating to Lottery security. During our audit we reviewed security over the Lottery building, Lottery games, and the Lottery computer system.

We also reviewed the implementation status of audit recommendations made in our previous audit reports. During our previous security audits, there were areas where no concerns were identified. We reviewed these areas to verify the same security controls still existed.

We reviewed the security controls over the Lottery's Stratus computer system. This included reviewing the appropriateness of employee access into system applications, evaluating physical and environmental controls protecting the system, reviewing various Stratus system documentation, and interviewing Lottery security and electronic data processing personnel.

We also evaluated the security controls over the computer system used for the Lottery's on-line lotto games. This included visiting Automated Wagering International (AWI) in Olympia, Washington, which provides computer services for Montana's on-line lotto games. During our visit, we determined if a recent sale of AWI caused any changes to the organizational structure of the company which could have affected computer security. We reviewed systems hardware and software controls, physical and environmental controls, and controls protecting both physical and electronic access to the system. We interviewed AWI security and electronic data processing personnel regarding procedures to ensure the security of the system. We also observed drawing procedures for the Lottery's on-line lotto games.

We evaluated security over the Lottery building including testing recently installed security devices at Lottery headquarters. These devices send an alarm to the Lottery's alarm service located in Missoula, Montana, in the event an intruder enters the

Lottery building during non-working hours. Tests of the security devices included after hour tests to ensure they were working properly. We also inspected the Lottery's alarm service facility in Missoula. We tested equipment which monitors and receives alarms from the security devices located at Lottery headquarters. We also evaluated Lottery procedures to control access to the Lottery warehouse.

We examined the extent of security over special events in which the Lottery participates. We reviewed policies and procedures regarding these events and attended special events to observe security over instant and on-line lotto games, lotto terminals, and cash.

We examined management controls relating to security. This included a review of such things as Lottery goals and objectives, policies and procedures, training, and performance appraisals.

Prior Audit Recommendations

The audit reports regarding Lottery security issued in October 1991 contained 24 recommendations suggesting ways Lottery management could improve security over various aspects of its operations. The recommendations were in areas relating to background investigations of Lottery personnel, management controls, and computer security. Lottery officials concurred with all the recommendations and established time frames to implement the recommendations.

During this audit we found Lottery management had implemented 17 of the prior audit recommendations and 3 were not fully implemented. Four other recommendations specifically related to the Lottery's internal audit function. These recommendations included changing the Lottery organizational structure so the internal auditor reports directly to the Lottery director; finalizing an internal audit charter; establishing policies and procedures specifying the role of the internal audit function; and, requiring the internal auditor to document audit work. Since the completion of our last security audit the internal audit position became vacant. The Lottery eliminated this position as a cost savings measure. Therefore, these recommendations were not applicable during this audit.

The three recommendations which were not fully implemented are discussed later in the report. They relate to performing more detailed data security reviews, establishing computer security training programs for security personnel, and restricting access privileges to computer programs not required in the performance of daily job duties.

Areas Where Security Controls Exist

We found many areas continue to have sufficient security controls as determined during previous audits. Furthermore, by implementing most of the recommendations from our previous security audit, the Lottery has also improved security. Areas in which we found security to be sufficient during this review include:

-- Instant games, including the delivery of tickets to Lottery headquarters and retailers, inventory procedures, and storage procedures.

-- Validation of winning tickets for instant and on-line lotto games.

-- Background investigations of Lottery employees, including obtaining fingerprints.

-- Controls over instant and on-line lotto game tickets and cash at special events.

-- Destruction of unsold instant tickets.

-- Montana Cash and Powerball drawings.

-- Performance appraisals for security-related staff.

Compliance

As part of our audit we reviewed compliance with state laws, administrative rules, and policies relating to Lottery security operations. We generally found the Lottery to be in compliance with applicable requirements; however, some instances of non-compliance were found. The areas of noncompliance concerned computer security training for security staff and internal evaluations of security over the Lottery's computer system. These issues are discussed later in the report.

Management Memorandum

During the audit we asked Lottery officials for written responses to potential report issues and recommendations. In addition, we issued a management memorandum to Lottery officials regarding:

Tape backup logs - Procedures exist for establishing tape backup of computer system and application files. However, these procedures would be strengthened if the Lottery maintained a tape backup log. This would provide a means for Lottery employees to easily determine which tapes were available and obtain information needed to pull or replace expired tapes.

Retention schedules - The Lottery has no retention schedule for backup tapes. The Lottery should establish a formal retention schedule for the backup tapes to provide guidance to Lottery staff as to how long tapes should be retained before reuse.

Chapter II - Background

Introduction

In November 1986, the people of Montana passed Legislative Referendum 100 establishing a state lottery. Lottery ticket sales began on June 24, 1987, with an instant win scratch game being the first Lottery game offered to the public. The Lottery has since increased the number of Lottery games by adding three on-line lotto games: Powerball, Montana Cash, and Tri-West Lotto. Ticket sales for Powerball began in April 1992 replacing Lotto*America. Ticket sales for Montana Cash began in May 1991. In February 1994, the Lottery introduced its third on-line lotto game called Tri-West Lotto. This game is offered in partnership with two other states, Idaho and South Dakota, and offers jackpot sizes between those won in Powerball and Montana Cash. Tri-West Lotto was not included in our review because it was not operational until after our audit work was completed.

Lottery Goals

Lottery management has established several security-related goals for the operation of the Lottery. Some of the major goals include:

-- Maintain the integrity of the Lottery games and drawings by enforcing adequate security measures.

-- Provide necessary support services to allow the Lottery to effectively serve both players and retailers.

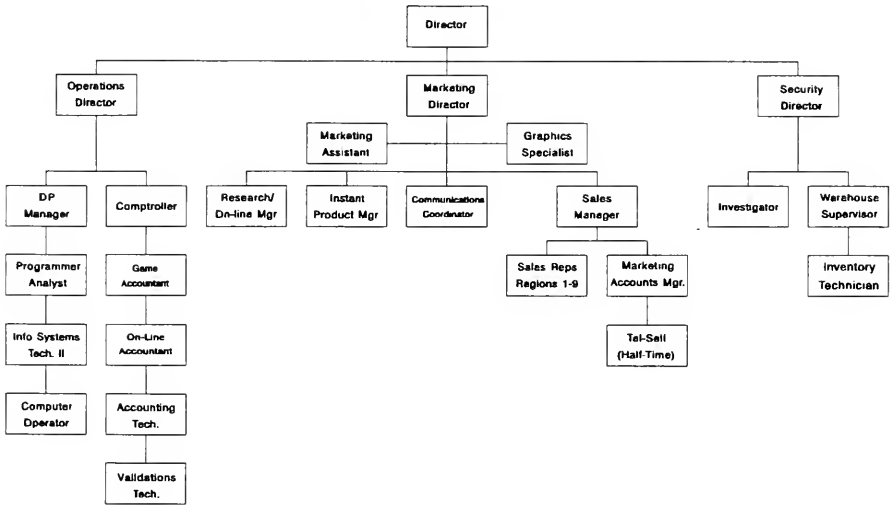
-- Maximize staff potential and encourage excellence in the work place.

Lottery Organization

The Montana Lottery is attached to the Department of Commerce for administrative purposes only. Lottery operations are administered by the Lottery Commission and a Lottery director. The following figure displays the organizational structure of the Lottery.

Figure 1

Montana Lottery Organization



Source: Compiled by the Office of the Legislative Auditor from Lottery records.

Lottery Commission

The Lottery Commission consists of five members appointed by the Governor. Section 23-7-201, MCA, requires three of the five members to come from specific professions. One commissioner must have a minimum of five years law enforcement experience, one commissioner must be an attorney licensed in Montana, and one commissioner must be a certified public accountant licensed in Montana. The remaining two board members are public members.

The Commission meets with the Lottery director at least once every three months to set policy, determine the types of games to offer, and review Lottery activities and operations.

Legislative Liaison Committee

In January 1987 a Legislative Liaison Committee was established to report on the operations of the Lottery. According to section 23-7-203, MCA, "The liaison committee consists of four legislators. Two members must be from the senate and two members must be from the house of representatives. The speaker of the house and the senate committee on committees shall appoint the members of the liaison committee, and no more than two members may be of the same political party. No legislator who has any ownership interest in any gambling device or establishment may be appointed to the liaison committee." The liaison committee is to meet once each fiscal year with the commission in Helena and report to the Legislature on the activities and operations of the state lottery.

Lottery Staff/Department Responsibilities

The Montana Lottery is authorized a total of 35.5 FTE. The Lottery has an administrative function which includes the Lottery director, who is appointed by the Governor, and three other FTE. The remaining 31.5 FTE are located in one of the three main Lottery departments: Operations, Marketing, and Security. A brief description of each department follows.

Operations Department

The operations department is authorized ten FTE, including a director of operations who administers the department. Other FTE include an EDP manager and three EDP staff, a comptroller, a game accountant, an on-line accountant, an accounting technician, and a validation technician.

The operations department is responsible for accounting and fiscal management of the Lottery, including establishing Lottery budgets and monitoring ticket sales. Other responsibilities include validating winning tickets and administering data processing operations.

Marketing Department

The marketing department is authorized 17.5 FTE including a director of marketing who administers the department. Other FTE include a graphics specialist, a marketing assistant, an instant product manager, a sales manager, a marketing researcher, a communications coordinator, nine marketing representatives, and a marketing accounts manager. There is also a half-time position which assists the telephone sales manager with calls to Lottery retailers. In order to deliver instant tickets to retailers in different parts of the state the marketing representatives are located in Billings, Bozeman, Butte, Great Falls, Glasgow, Helena, Kalispell, Miles City, and Missoula. The marketing representatives are also responsible for promoting the Lottery's instant and on-line lotto games. This is done by distributing point-of-sale materials to the retailers, negotiating space with retailers for product displays, and attending special promotion events for the Lottery in their regions.

The marketing department is responsible for designing and managing Lottery games, researching and analyzing Lottery sales, distributing instant game tickets to retailers, and promoting the Lottery.

Security Department

The security department is authorized a total of four FTE which includes a director of security who is responsible for overseeing the security operations of the department including the Lottery warehouse. Other FTE include an investigator and two warehouse personnel.

The department is responsible for monitoring all aspects of security over Lottery operations. This includes performing background checks of all employees and ticket retailers, licensing of retailers, ensuring tickets are produced and printed in compliance with established security measures, and directing investigations of alleged Lottery fraud or theft. The department also monitors special drawings and promotions, establishes security policies and procedures for new games designed by the Lottery, and ensures the security of the Lottery's computer system. The overall goal of the security department is to

maintain security, honesty, fairness, and integrity over Lottery operations.

Lottery Funding

Lottery operations are funded through the sale of instant and on-line lotto game tickets. Section 23-7-402, MCA, specifies how Lottery revenues are to be distributed. This statute requires a portion of the money collected from ticket sales to be used for the payment of prizes, retailer commissions, and operating expenses. Funds not used for these purposes are considered net revenue and are paid quarterly to the Office of Public Instruction and the Board of Crime Control. Table 1 illustrates those areas in which state law requires lottery revenue to be distributed.

Table 1

Revenue Distribution Requirements
Fiscal Year 1993-94

Area For Distribution	Percentage for Distribution
Prize Money	Minimum 45%
Retailer Commissions	No more than 10 percent
Operating Expenses	Not Specified
Office of Public Instruction	Net revenue paid quarterly as state equalization aid
Board of Crime Control	9.1% of net revenue, not to exceed $1 million, to fund state grants to counties for youth detention services (State law required first year transfer of only 1.6%)

Source: Compiled by the Office of the Legislative Auditor from Montana Code Annotated.

Sales and Distribution of Net Revenue

During its six years of operation (through June 30, 1993) the Lottery had sales of $147.4 million. Transfers have totalled $33.2 million to the Office of Public Instruction and $900,000 to the Board of Crime Control. Lottery sales and distributions of revenues for the last three fiscal years are displayed in the following table:

Table 2

Montana Lottery Revenue and Distributions
Fiscal Years 1990-91 through 1992-93
(Millions)

	FY 1990-91	FY 1991-92	FY 1992-93	TOTAL
Revenues				
Instant Games	$ 8.2	$ 9.3	$ 9.1	$26.6
Lotto*America	14.8	10.5	N/A	25.3
Powerball	N/A	2.4	18.5	20.9
Montana Cash	.9	5.8	9.1	15.8
TOTAL	$23.9	$28.0	$36.7	$88.6
Distributions				
Prizes	$11.7	$13.6	$17.7	$43.0
Commissions	1.3	1.6	2.0	4.9
Ticket Costs	4.0	4.2	5.2	13.4
Operations	2.7	3.0	3.0	8.7
OPI Transfers	4.2	5.5	8.0	17.7
BCC Transfers	N/A	.1	.8	.9
TOTAL	$23.9	$28.0	$36.7	$88.6

Source: Compiled by the Office of the Legislative Auditor from Lottery records.

Computer Operations

The Montana Lottery uses its own minicomputer known as the Stratus system to perform the majority of its data processing activities. The Stratus system utilizes Instant Lottery Software (ILS) to perform various functions associated with instant games. Some of the ILS functions the Lottery utilizes include:

-- Verifying winning instant tickets.
-- Writing checks to winners.
-- Voiding unused, returned, or stolen tickets.
-- Monitoring and issuing ticket inventory.

-- Collecting payments from retailers using electronic funds transfer.
-- Collecting various types of data regarding prize winners.

In addition to performing functions related to instant games, the Stratus system also verifies the integrity of AWI's computer system which administers the Lottery's on-line lotto games. This is done via the Internal Control System (ICS) which is part of the Lottery's Stratus computer system. The ICS gives the Lottery the capability to verify the accuracy of AWI's ticket sales information for on-line lotto games.

Instant Games

Introduction

Instant games were the first games offered by the Lottery. These games allow players to determine if they are winners by rubbing a latex coating off a ticket. For example, if three identical play symbols appear on the ticket players win instantly. If a winning ticket is $50 or less it can be redeemed by the retailer from which the ticket was purchased. If the ticket is more than $50, it must be redeemed by the Lottery. This can be done by a player either bringing the ticket to the Lottery or mailing the ticket to the Lottery.

The Lottery offers the public a choice of instant games by offering two games simultaneously. This allows the Lottery to offer one instant game with more high-tier winners and one with more low-tier winners. An instant game is on sale for approximately 12 weeks with a new game offered every 6 weeks.

The following sections discuss the Lottery's instant game cycle including: game design and prize structure, ticket delivery and inventory, ticket distribution, and procedures followed by Lottery personnel at the end of an instant game.

Game Design/Prize Structure

Instant games are designed by various Lottery staff who meet periodically to discuss game strategies, prize structures and ticket specifications. Once this information is determined, working papers are developed which detail the specifications for the game such as the Guaranteed-Low-End-Prize-Structure (GLEPS) and the physical appearance of the tickets. After the working papers are compiled, they are sent to the instant ticket vendor (Dittler Brothers, Inc.) which reviews the working papers and returns them to the Lottery with suggested changes and/or questions. Several draft versions of working papers are developed and reviewed by both the Lottery and Dittler Brothers, Inc. before a final game design and prize structure is selected. Upon approval of the final working papers by Lottery personnel, they are returned to Dittler, Inc. so they can begin printing tickets.

Ticket Delivery/Inventory

All instant tickets are printed by Dittler Brothers, Inc. in Atlanta, Georgia, and shipped directly to Lottery headquarters via tractor/trailer. When the trailer arrives at Lottery headquarters, a member of the security department inspects the trailer for signs of tampering. This entails comparing the seal and lock numbers on the trailer to those listed on the bill-of-lading and conducting a visual inspection of the trailer. Once the security representative is satisfied the trailer has not been tampered with, the trailer seal is cut and the trailer opened. The contents are then inspected by security or warehouse personnel for any damage or signs of tampering. The trailer is unloaded and the tickets moved inside the Lottery warehouse.

Once the tickets are in the warehouse, a 100 percent inventory is conducted. Using inventory reports supplied by Dittler, a visual inspection of each pack of tickets is performed. The packs are examined to ensure: all tickets are present, the latex covering is free from scratches, play symbols are covered by latex, the general appearance of tickets is good, and the shrink wrap on individual packs is free of tears. Defective packs are recorded and pulled from the inventory. As part of the inventory process, security staff perform a GLEPS test on the tickets. The main purpose of the GLEPS test is to assure ticket shipments meet the prize structure approved by the Lottery. After the inventory is

complete, ticket packs are separated into marketing representative regions in the warehouse. Once the tickets are separated, they are ready for delivery to the marketing representatives.

Ticket Distribution

At the start of a new instant game the tickets are either picked up by the marketing representatives or delivered to the marketing representatives by Lottery staff. The marketing representatives store the tickets in established storage areas which have been reviewed and approved by Lottery security personnel. The marketing representatives then deliver tickets to the retailers for sale to the public. Periodically, the Lottery uses United Parcel Service to deliver tickets directly to a retailer. This is usually only done when marketing representatives are sick or on vacation and a retailer needs tickets delivered as soon as possible.

End-of-Game Procedures

At the conclusion of each game, marketing representatives gather unsold instant tickets from the retailers. The marketing representatives are then responsible for returning these tickets to Lottery headquarters. Upon receipt of unsold tickets from all regions, a 100 percent inventory is performed by warehouse personnel.

Ticket Disposal

Upon completion of the ticket inventory, the unsold tickets are stored for the six months winning tickets could still be submitted for prize payment. After the six month waiting period an audit of the tickets is conducted by staff from the operations department. At the completion of the audit the unsold tickets are incinerated.

On-Line Lotto Games

Introduction

Currently, three on-line lotto games are being operated by the Lottery: Powerball, Montana Cash, and Tri-West Lotto. On-line lotto games are controlled by a central computer system which is attached to sales terminals at retailer locations. A communications network is used to transfer information on ticket sales from the terminals to the central computer.

Powerball

In April 1992 Powerball replaced Lotto*America as Montana's multi-state lotto game. As with Lotto*America, Powerball is a multi-state on-line lotto game offering smaller states the opportunity of providing larger jackpots than is typically possible through a state lotto game. During fiscal year 1992-93 the Montana Lottery participated in Powerball with 13 other states and the District of Columbia.

By participating in Powerball, the Lottery is a member of the Multi-State Lottery Association (MUSL) which is headquartered in Des Moines, Iowa. MUSL administers operations for Powerball as it did for Lotto*America. The Lottery must assure MUSL of compliance with MUSL rules and Powerball game procedures. Powerball drawings are held in Des Moines, Iowa, every Wednesday and Saturday night.

The Powerball drawings are monitored to maintain the security and integrity of the drawings. Off-duty police officers and independent auditors are contracted by MUSL to oversee the drawing. Additionally, independent audit firms contracted by MUSL observe drawing procedures performed by each MUSL member including the Montana Lottery staff at Lottery headquarters.

Powerball replaced Lotto*America in order to improve the odds of players winning a prize. Powerball offers players nine different prize levels compared to only three for Lotto*America. Players win or share the Powerball jackpot by matching five white balls in any order from a field of 45 numbers and match-

ing a red "powerball" from a separate field of 45 numbers. Powerball jackpots start at a guaranteed $2 million and increase each time they are not won based upon total ticket sales for each drawing. Players can also win prizes ranging from $1 to $100,000 based on the number of balls they match. Players purchase Powerball tickets from licensed retailers for one dollar and receive one chance to win for each dollar spent. There is no limit on the number of chances a player can purchase.

The following figure illustrates the prize structure for Powerball and the odds of winning various prizes for each one dollar play.

Figure 2

Powerball Prize Structure

Match	Prize	Odds per $1 Play
5 White Balls + POWERBALL	JACKPOT	1:54,979,155
5 White Balls	$100,000	1:1,249,526
4 White Balls + POWERBALL	$5,000	1:274,896
4 White Balls	$100	1:6,248
3 White Balls + POWERBALL	$100	1:7,049
3 White Balls	$5	1:160
2 White Balls + POWERBALL	$5	1:556
1 White Ball + POWERBALL	$2	1:120
POWERBALL	$1	1:84

Overall Odds - 1:35

Source: Montana Lottery

Powerball tickets are printed from on-line lotto terminals located in retailer establishments. Players can choose their own numbers to play or have the terminal randomly select the numbers. Automated Wagering International (AWI) is responsible for the maintenance of these terminals and provides and installs terminals in retailer locations selected by the Lottery. AWI also supplies retailers with ticket stock and provides technical assistance regarding terminal operations.

Montana's Powerball operations are controlled by a central computer located in Olympia, Washington, which is administered by AWI. AWI's computer system monitors, stores, and compiles ticket sales information such as the date and time tickets were purchased and the numbers selected. AWI's computer system is monitored by the Lottery's Internal Control System (ICS) which is part of the Lottery's Stratus computer system. The ICS gives the Lottery the capability to verify the accuracy of AWI's ticket sales information for on-line lotto games.

Montana Cash

Ticket sales for Montana Cash began in May 1991. Unlike Powerball which is a multi-state lotto game, Montana Cash is an on-line lotto game played only in Montana. Drawings for Montana Cash are held each Wednesday and Saturday evening at Lottery headquarters.

Montana Cash offers players a chance of winning a guaranteed minimum jackpot of $20,000 by matching five numbers from a field of thirty-seven. This game is designed to offer jackpots which are smaller than Powerball but larger than top prizes typically offered via an instant game. In addition, a player wins $200 by matching four of thirty-seven numbers and $5 by matching three numbers. The following table illustrates the prize structure for Montana Cash and the odds of winning a prize.

Table 3

Montana Cash Prize Structure

Match	Prize	Odds per $1 Play
5 of 37	JACKPOT	1:217,949
4 of 37	$200	1:1,362
3 of 37	$5	1:44

Overall Odds - 1:43

Source: Compiled by the Office of the Legislative Auditor from Lottery records.

As with Powerball, AWI administers the computer operations for Montana Cash since tickets are sold using the same terminals as Powerball. The Montana Cash drawing is monitored by an independent auditing firm who assures the integrity of drawings and compliance with established drawing procedures.

Retailers

There are 760 retailers licensed to sell instant lottery tickets in Montana. Of these, 318 are also authorized to sell on-line lotto game tickets for Powerball and Montana Cash. Before retailers are considered for a license to sell lottery tickets, they are subject to a statutory background investigation by the Lottery's security department. The $50 cost of a retailer license is used to cover the expense of investigating and processing the application.

Retailers have specific responsibilities for both instant and on-line lotto games. Some of the retailer responsibilities for instant games include redeeming low-tier ($50 and under) instant tickets, providing security for their instant ticket inventory, paying the Lottery for ticket inventory received, and returning unsold tickets at game end. Retailer responsibilities for on-line lotto games include redeeming low-tier (under $600) tickets, correct use and operation of game terminals, and notifying AWI of any problems with the terminals. In order to spell out what is expected of the retailers, the Lottery has supplied retailers with policy and procedure manuals for both instant and on-line lotto games. Retailers can refer to the manuals for any questions they may have regarding either game. If retailers cannot find an answer in the manual, toll-free telephone numbers are provided for the Lottery and AWI.

Chapter III - General Security Procedures

Introduction

During the audit we found security procedures existed ensuring security over many areas of Lottery operations. However, we identified some areas where security procedures could be improved. This chapter examines the procedures for security over the lottery warehouse and for evaluating test results for disqualified Montana Cash ball sets. The following sections discuss the issues we identified.

Warehouse Access Policies not Enforced

During our security audit we observed employees other than security and warehouse personnel entering the Lottery warehouse. These employees have not been authorized unrestricted access to the warehouse by the Lottery's security department. All access was made through a set of double-doors which lead from the Lottery's office area directly into the warehouse. These doors are the main route between the office area and the warehouse. We noted an effective control system was not in place controlling access through these doors. During a one month time frame we observed 18 different occasions when employees with restricted access entered the warehouse through the double-doors.

Security policies make security and warehouse personnel responsible for monitoring access to the warehouse and ensuring the warehouse remains secure. This includes ensuring all warehouse doors are locked in the absence of security and warehouse personnel. These policies also require employees with restricted access to the warehouse be let in by ringing a doorbell located on the double-doors and signing an access log upon entering and leaving the warehouse. However, since the doors were not always locked, employees with restricted access were observed entering the warehouse without ringing the doorbell or signing the access log. On three occasions the door remained unlocked although neither security nor warehouse personnel were in the warehouse to monitor access. On two of these occasions employees with restricted access entered the warehouse.

The Lottery warehouse is used to store the Lottery's inventory of instant game scratch tickets, Montana Cash drawing ball sets,

mail for second chance drawings, special promotional items, and Lottery check stock. Lack of control over warehouse access increases the potential items stored there could be removed or tampered with by unauthorized personnel. It is likely other controls would limit the success of redeeming instant tickets or cashing Lottery checks. However, there could be a loss of public trust in the Lottery if employee theft occurred. Successful Lottery operations are dependent upon the public having faith in a secure Lottery; both externally and internally.

Security and warehouse personnel should enforce Lottery security policies which limits warehouse access to authorized employees. It is also important for security and warehouse personnel to ensure the manual access log is completed whenever other employees are allowed into the warehouse. This is the only way of obtaining a record of which employees have entered the warehouse and the reason they were allowed access.

Maintain the Control System Which Limits Warehouse Access

Lottery officials responded to our concern by installing new locks on the doors which automatically lock when the double-doors are closed. Officials told us only security and warehouse personnel have keys to the doors. In addition, they indicated the access log has been moved into the warehouse and will be monitored by security and warehouse personnel in the future.

It appears this action taken by security personnel addresses our concern regarding the double-doors. It is important this control system be maintained to ensure the security and integrity of the warehouse.

Recommendation #1

We recommend the Montana Lottery:

A. Maintain the control system which limits warehouse access to authorized employees.

B. Enforce the requirement all non-security and non-warehouse personnel sign the access log when entering and leaving the warehouse.

Montana Cash Ball Set Test Results

Introduction

Montana Cash is the Lottery's statewide on-line lotto game which offers players a chance to win by matching five numbers from a field of thirty-seven. To ensure the integrity of the Montana Cash drawing and that the numbers are randomly selected, the Lottery's security department has developed drawing procedures which are followed during each drawing. Five different drawing ball sets exist and procedures require drawing officials to randomly select two ball sets for the drawing. The ball sets used to conduct Montana Cash drawings consist of ping-pong balls which are numbered from one through thirty-seven. The first set selected is considered the primary ball set and the other is the secondary ball set. Before the Montana Cash drawing takes place, drawing officials conduct four pretests of the primary ball set. If the same ball is selected three times, a fifth pretest is required. If this ball comes up again during this test, the ball set is disqualified and is replaced with the secondary ball set. Disqualified ball sets are not eligible for another drawing until tested by the Weights and Measures Bureau of the Department of Commerce.

Test Documentation Supplied by Weights and Measures not Evaluated

During our security audit we evaluated the Lottery security department's process for testing disqualified Montana Cash ball sets. The Weights and Measures laboratory provides information regarding how much the total weight of a disqualified ball set has changed and also provides documentation indicating the weights of each individual drawing ball.

We found that although Lottery's security department can determine if the weight of an entire ball set has changed, it does not have a process for monitoring the documentation for the individual drawing balls to determine if the weight for the balls has changed. When test results are received from Weights and Measures the documentation is filed away and nothing more is done with it. In addition, the security department has not established a guideline for acceptable weight ranges for the drawing balls.

A Weight Guideline Should be Established

The test conducted by Weights and Measures includes inspecting each ball for roundness and weighing each ball in the set. The weighing process is designed to determine if any changes have occurred in the weight of the drawing balls which could affect the fairness of the Montana Cash drawing.

Officials at Weights and Measures indicated because ping-pong balls are lightweight plastic the weight of the balls could change. A variety of factors could cause changes in the weights of the drawing balls including, barometric pressure, fingerprints, dirt, and abrasions.

A significant change in the weight of just one ball in a ball set could affect the randomness of the Montana Cash drawing in which the ball set was used. A random drawing is important to ensure the fairness of the game and ensure all players have an equal chance of winning. By monitoring only the total weight of the ball set, Lottery security officials can not be positive the ball set will ensure a random drawing. This must be done by monitoring the individual drawing balls in the ball set. However, this determination can not be made without establishing a guideline on the acceptable weight range for the drawing balls. Without

this guideline it is not possible to make an accurate determination whether or not the weight of the drawing balls has changed too much.

Lottery security officials told us they will begin working to establish a guideline for acceptable weight ranges of Montana Cash drawing balls. Security officials also agree the weight of the individual drawing balls is valuable information and they will monitor the weights of these balls.

Recommendation #2

We recommend the Montana Lottery:

A. Create a guideline for acceptable weight ranges for Montana Cash drawing balls.

B. Monitor and document the information provided by Weights and Measures to determine if weights fall within this acceptable weight guideline.

Chapter IV - Computer Security

Introduction

We examined security controls over the Lottery's Stratus computer system and the Automated Wagering International (AWI) computer system. Computer security controls protect assets and limit losses from three types of basic threats: intentional acts such as fraud or sabotage; disasters such as water or fire damage; and human errors and omissions such as data entry errors. During our audit we noted several weaknesses in computer security controls for the Stratus and AWI computer systems. The following sections discuss the weaknesses and improvements which should be made.

Stratus System Physical and Environmental Controls

We reviewed the Montana Lottery's computer facility to evaluate physical and environmental controls over the Stratus computer system. These controls are essential to protect the system from potential disasters such as fire or water damage. During the course of our examination, we noted the following areas where the Lottery could improve environmental controls over its computer facility.

Water Lines above the Computer Room

A sink with a charged water line is located directly above the computer room. If this line were to break, the water could cause extensive damage to the Lottery's computer system. This would result in a disruption or discontinuation of data processing activities until repairs were made or replacement parts were installed. A properly operating computer system is vital to successful lottery operations.

In our 1989 security audit (87P-43A) we recommended the Lottery eliminate the flow of water in this line. Lottery security officials agreed with this recommendation and the water was turned off. However, security officials were unaware an employee had turned the water back on until we notified them during this audit. An employee was able to turn the water back on because the water flow was not eliminated in the line. Instead, it was turned off at the sink which allowed the water to be easily turned on again. In addition, turning the water off at the sink does not eliminate the water in the line located above

the computer facility. Consequently, the potential still exists that the line could break and water could damage the computer system.

Water lines above the computer room should either be moved or the flow of water completely eliminated. Eliminating the flow of water should include completely draining the pipes and installing a locking valve which prevents employees from turning the water back on.

In response to our concern Lottery security officials installed a shut off valve away from the computer room. Security officials indicated this valve eliminates the flow of water before it gets above the computer room. Since the flow of water could be turned back on, security officials should seal the valve to ensure it remains closed.

Recommendation #3

We recommend the Montana Lottery eliminate the flow of water in the water lines above the computer room.

Fire Extinguisher and Smoke Alarm Need to be Tested

The computer room is protected from fire damage through an early warning smoke alarm, and a hand-held halon fire extinguisher. During our review, we found the smoke alarm was not included in regular testing, and the fire extinguisher testing was past due.

Regularly scheduled testing of the fire detection and suppression devices should be done to ensure computer equipment is protected from fire damage. Lottery security officials told us they overlooked the testing of both the smoke alarm and the fire extinguisher located in the computer room.

Over the years additional security devices have been installed in the Lottery building. Consequently, there are more devices to

regularly test. This increases the likelihood a device may be overlooked and not tested. Presently, security personnel are not utilizing a checklist to conduct regular tests of security devices. A checklist would help ensure all devices, including the smoke alarm and fire extinguisher, are tested regularly. As a result of our findings, Lottery security officials told us they will develop a checklist to aid them in testing all security devices.

Recommendation #4

We recommend the Montana Lottery develop a checklist to assist security staff in testing all security devices, including the smoke alarm and fire extinguisher.

Stratus System Access and Organizational Controls

During the course of our audit we reviewed access and organizational controls over the Lottery's Stratus computer system. This review included: evaluating user access provided to various computer operations, evaluating the Lottery's disaster recovery plan, and determining the level of internal computer security reviews conducted by the Lottery to ensure security exists over its computer system. We noted the following areas where improvements are necessary in access and organizational controls.

Retain Documentation Supporting Computer Program Access

Computer programs are instructions defining operations to be performed by a computer. For example, the Lottery's instant ticket inventory is monitored utilizing a computer program.

Lottery security policies and procedures require all requests for computer program access be documented utilizing an authorized "Request for Program Access" form. This form is to be approved by both the department head for which the employee works and the security department's system administrator. Security policies also indicate "no access will be honored by the system administrator without the benefit of the completion of this form."

We reviewed computer program access requested by Lottery personnel for Stratus operating and Instant Lottery System (ILS) application files. We found "Request for Program Access" forms existed for access requests by new employees. However, these forms generally did not exist in those cases where existing employees requested an access change or update for the system. Lottery security officials indicated they receive these forms prior to any access changes or updates. However, security personnel told us they do not retain these forms once the access is changed.

Documentation provides evidence as to why computer program access changes or updates were made and who requested and approved the changes. Without this documentation there is no record of why access changes were made. Later in our report we discuss the need for the Lottery to improve security reviews of its computer system. Lack of this documentation would reduce the effectiveness of these reviews as they relate to employee access to computer applications.

Policies and procedures should include the retention of "Request for Program Access" forms. The Lottery should require these forms accompany all access changes and updates. In addition these forms should be retained for future reference in accordance with the Lottery's security review schedule and state records retention policies. Lottery officials told us they will retain all program access forms in the future.

Recommendation #5

We recommend the Montana Lottery retain documentation authorizing access to Stratus operating and ILS application files.

Reviews of ILS Access Rights Need Improving

Lottery employee access to the Stratus computer system should be limited to data files and programs needed in the performance of their duties. We reviewed ILS system access rights granted to Montana Lottery employees. Based upon interviews with Lottery employees and reviews of their position descriptions, we found three employees with unnecessary access rights to ILS applications. All three employees had the ability to sell packs of instant tickets to walk-in retailer customers. Job duties for these individuals did not require access to these applications.

Access to data files and programs in excess of job duties provides opportunity for unauthorized manipulation of ILS data. For example, the potential exists for ticket sales and payment information to be modified without authorization. Lottery security personnel indicated they periodically review access rights from system generated documentation and these cases of improper employee access rights were an oversight. However, security personnel also told us they have no system for conducting these reviews and perform them when they find time or see a need. Since security personnel do not document these reviews we were unable to determine if reviews are being completed.

The security department should establish a system for reviewing employee access privileges. These reviews should also be documented as they are completed. Documentation of review results would provide indication of any problem areas found and what was done to address these problems. Documentation would also provide assurance to Lottery management the reviews are completed and problems corrected.

Recommendation #6

We recommend the Montana Lottery:

A. Establish a system for reviewing employee access privileges to ILS applications and document these reviews.

B. Revoke the access privileges to ILS applications for those users not requiring it in the performance of their job duties.

Develop a Disaster Recovery Plan for the Stratus System

Backup and recovery planning consists of those activities undertaken in anticipation of circumstances which could result in complete or partial shutdown of the Lottery's Stratus computer system. Examples include fire, flood, earthquake, and vandalism.

Although the Lottery does store backup data off-site, it does not have a formal, tested backup and disaster recovery plan or an alternate site agreement for the Stratus system. Without a disaster recovery plan or alternate site agreement, a major disruption in computer operations could adversely affect Lottery operations resulting in loss of data, assets and revenue, or processing delays. Additionally, the public could lose confidence in the Lottery if a computer failure resulted in the public not being able to purchase Lottery tickets or redeem winning tickets for any significant length of time.

We first addressed this issue during our 1989 security audit. The Lottery indicated they would have a disaster recovery plan in place by December 1989. In our 1991 audit, we found the plan had progressed and believed it would soon be in place. However, very little progress has been made since that time. Lottery personnel indicated other matters took priority over the disaster recovery plan and it was put on hold. Security officials told us they have been discussing equipment replacement

agreements with Stratus Computer Inc. and testing backup possibilities. The Lottery will need to utilize a backup facility other than the one used by the state of Montana. The state's backup facility is not compatible with the Stratus system.

Backup and recovery capabilities should be sufficient for timely restoration of files and applications when loss or damage to data occurs. Disaster recovery plans should also include alternate site or equipment replacement agreements. Such an agreement would provide backup equipment options for the Stratus computer system.

Recommendation #7

We recommend the Montana Lottery develop a formal, tested backup and recovery plan that includes an alternate site or equipment replacement agreement.

Lottery Retailer Filing and Data Input Procedures

Introduction

We reviewed the accuracy of retailer information found on the Lottery's computer system by comparing retailer information found on the computer system to the supporting documentation maintained in the hard copy retailer files. The security department maintains retailer files which contain hard copy documentation for information input into the system. During our review, we identified areas where the Lottery could improve its procedures for maintaining supporting documentation and inputing retailer information into its computer system. The following sections discuss our concerns and those improvements that should be made.

Supporting Documentation Missing from Retailer Files

Lottery policy requires specific forms and information be contained in the hard copy retailer files prior to issuance of a license to a retailer to sell Lottery tickets. These forms are used to gather information on the retailer such as name, address, phone number, and Electronic Funds Transfer (EFT) account number. An EFT account number is the bank account through which a retailer pays by electronic transfer for Lottery tickets the retailer has purchased.

Of 22 retailer files tested, 19 (86 percent) did not contain all hard copy information required by Lottery policy. Consequently, we were not able to determine if the information on the system is accurate. We also noted several instances where changes were made to retailer information on the computer system. However, in most cases the retailer files did not contain the required authorized documentation supporting these changes. Therefore, when we found information on the computer system not matching the information in the retailer files, we were unable to determine which was correct.

Retailer Information on Computer System is Incorrect

In those cases where documentation was in the retailer files, we found instances where information on the computer system did not match the supporting documentation. Information we found which was incorrect on the computer system included: retailer names, phone numbers, and addresses; tax ID numbers; and lottery regional numbers. In addition, we found two retailers who were terminated but were still shown as active on the system.

Security Staff Should Review Retailer Files

The security department is responsible for the accuracy and completeness of the hard copy retailer files. Security department policies require the security director or investigator to review retailer files prior to issuing a license. However, we found no evidence of such a review. Additionally, we noted security policies do not require security officials to review and approve changes/updates made to retailer files or approve changes made on the computer system. Changes can be made by the Lottery for instant and on-line lotto games and by AWI for on-line lotto

games. These changes can be made without notifying security personnel or obtaining their approval. Many of these problems would have been avoided if security personnel conducted more detailed reviews of retailer files and retailer information on the computer system.

Establishing policies requiring security personnel to review retailer files and retailer information on the computer system would help ensure the accuracy of this information. This should include reviewing and approving all changes and updates to the files to ensure all documentation is placed in the files. Since we found several files where information was either incorrect or missing it is important for the Lottery to also conduct periodic reviews of retailer files and retailer information found on the computer system. This would help identify files that are out-dated, incomplete, or inaccurate.

Recommendation #8

We recommend the Montana Lottery:

A. Perform a review of hard copy retailer license files prior to license issuance in accordance with internal security policies.

B. Establish a policy for centralized review of all changes to hard copy retailer files and information on the computer system.

C. Review existing hard copy retailer files and computer information for accuracy.

Computer Security Reviews Should be Performed

Section 2-15-114, MCA, specifies state agencies are responsible for ensuring security for all their data and information technology resources. Furthermore, this law requires the implementation of appropriate cost-effective safeguards to reduce, eliminate, or recover from identified threats to data and resources. The statute also requires state agencies ensure internal

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B. Establish a policy for centralized review of all changes to hard copy retailer files and information on the computer system.

C. Review existing hard copy retailer files and computer information for accuracy.

Computer Security Reviews Should be Performed

Section 2-15-114, MCA, specifies state agencies are responsible for ensuring security for all their data and information technology resources. Furthermore, this law requires the implementation of appropriate cost-effective safeguards to reduce, eliminate, or recover from identified threats to data and resources. The statute also requires state agencies ensure internal

We noted the following improvements are necessary in general controls over AWI's computer system as they relate to Montana Lottery operations.

AWI Disaster Recovery Plan Should Include the Montana Lottery

As discussed previously on page 32, backup and recovery planning is critical to Lottery operations. We reviewed AWI's disaster recovery plan and found no mention of the Montana Lottery as part of the plan. Instead, the plan relates specifically to the Washington State Lottery Program. For example, the plan lists people to contact from the Washington State Lottery and procedures for these people to follow in the event of a disaster situation. The entire plan only addresses how to maintain Washington State Lottery operations in the event of a disaster. The plan does not include any contacts from the Montana Lottery. The plan also does not address how to minimize the effects on Montana Lottery operations in the event of a disaster. AWI security personnel indicated the Montana Lottery is assumed to be part of the plan, but the wording of the plan does not indicate this.

Since the Montana Lottery is not included in AWI's disaster recovery plan, there is less assurance the Lottery would be included in any disaster recovery efforts undertaken by AWI. At the very least, disaster recovery efforts for Montana could be delayed by not including the Lottery in the plan. Therefore, the Montana Lottery should be specifically included in AWI's disaster recovery plan.

Disaster Recovery Plan Needs Alternate Site Agreement

While reviewing AWI's disaster recovery plan, we also noted it does not include a formal agreement for a specific alternate site for computer operations to resume in the event of a disaster. Wording in the plan regarding an alternate site is vague, stating only that ". . .steps will be taken immediately to establish a replacement data center."

Not having a specific site designated as an alternate site for computer operations to resume does not provide assurance Montana's on-line Lotto games would be restored by AWI on a timely basis. Any downtime in AWI's computer system would result in the Lottery not being able to sell or redeem Powerball

or Montana Cash tickets. The Lottery would experience a loss of revenue and a possible loss of public trust for these games.

AWI has different options for alternate sites such as using its facilities located in Minnesota or establishing a site in Olympia and shipping replacement equipment to that site. AWI should have a formal agreement designating a specific backup site in the event its main computer operations shut down. Any site selected should have backup and recovery capabilities sufficient to restore files and applications when loss or damage occurs.

Summary

Lottery security officials told us they attended a two day meeting with AWI and Washington State Lottery officials to draft the disaster recovery plan. Consequently, they are not sure why information specific to Montana Lottery operations were excluded from the plan.

AWI has the foundation for an effective disaster recovery system. AWI personnel overlooked the Montana Lottery when drafting the plan and choosing an alternate facility. As a result of our concerns, AWI officials indicated they will begin integrating Montana into the disaster recovery plan. They also indicated alternate facilities are now being explored and agreements will be established when a site is found.

Recommendation #10

We recommend the Montana Lottery require:

A. The AWI disaster recovery plan include Montana Lottery operations.

B. The AWI disaster recovery plan include a formal agreement for establishing an alternate computer facility.

On-Line Management Terminal Access Rights are not Approved and Reviewed

The On-line Management Terminal (OLMT) system allows direct communication between the Montana Lottery and AWI's computer system located in Olympia, Washington. We reviewed the OLMT system access rights granted to Montana Lottery and AWI personnel. We found nine AWI employees with access rights to OLMT applications beyond the requirements of their position descriptions. Two AWI personnel had the ability to update retailer files, and seven had the ability to give cash advances to retailers and make retailer adjustments. In addition, all nine employees had the ability to update on-line lotto game files. AWI security officials agreed job duties for these employees do not require access to those applications.

Access rights to applications in excess of job duties increases the potential for manipulation of OLMT retailer files and unauthorized changes to the game files. We found there are no policies and procedures requiring Montana Lottery security officials to approve all access rights to OLMT applications as they relate to Montana Lottery operations. Currently, AWI security personnel authorize access rights to their personnel and Montana Lottery security officials approve and give access rights to Lottery employees. No process exists for Montana Lottery security officials to approve access rights to OLMT applications for AWI employees based on the requirements of their position description. There are also no policies and procedures for periodically reviewing access rights to OLMT applications. There should be a schedule for reviewing OLMT access rights and these reviews should be documented.

State law (section 23-7-212, MCA) gives the Lottery's security department the responsibility for ensuring the overall security of the Lottery. Therefore, all OLMT access rights for AWI employees should be approved by Lottery security personnel based on the requirements of the position description for these employees. Additionally, security personnel should also periodically review the access.

Recommendation #11

We recommend the Montana Lottery:

A. Approve AWI employee access rights to Lottery OLMT applications based on the requirements of employee position descriptions.

B. Review the reasonableness of OLMT access on a periodic basis.

External Evaluations of AWI's Computer System

As part of our on-site review of controls over AWI's computer system we determined if any external control evaluations are completed which ensure continued security over the system. During our review, we found the Montana Lottery is not conducting or requiring an external review of AWI's computer operations as they relate to Montana Lottery operations.

On-Line Revenues Dictate Periodic Reviews

In the last two fiscal years on-line lotto games for the Montana Lottery earned a total of $46.3 million. This is approximately 70 percent of total Lottery revenue over this time period. Therefore, it is important the Lottery ensure the computer system at AWI remain secure from any possible security violations whether accidental or intentional. The most effective way of doing this is through an external evaluation process directed by the Montana Lottery.

Periodic external evaluations of AWI have not been performed because the Lottery officials believe AWI is a "professional, security conscious organization." While we do not question the professionalism or security consciousness of AWI, we have identified security weaknesses which require improvement in some areas of their computer operations relating to the Montana Lottery. These weaknesses occurred as a result of Montana Lottery security officials not formally monitoring AWI computer operations as they relate to the Montana Lottery.

External Reviews Could Eliminate Control Weaknesses

Section 23-7-212, MCA, sets forth the director of security's responsibility for ensuring the security over the Montana Lottery and its games. This law requires the director of security to ensure the ". . .security, honesty, fairness, and integrity in the operation and administration of the lottery. . ." Since the operation of the Lottery includes three on-line lotto games which rely upon AWI's computer system, the director of security should require periodic external reviews of the system to ensure the system remains secure.

It is important this review be performed by an individual or entity not employed by AWI to ensure independence. This means the director of security could perform the review or require AWI to hire an independent firm to conduct the review. The Washington State Lottery periodically performs a security review of AWI's computer system as it relates to the Washington State Lottery. The Montana Lottery may be able to coordinate with them to do a combined review. The Lottery's director of security would be ultimately responsible for ensuring the completeness of any review which was conducted.

Lottery security officials conduct periodic evaluations of the company which prints its instant tickets in order to review the security over its operations. We believe the Lottery should do the same for AWI since they provide the services for the on-line lotto games which constitute the majority of the Lottery's revenues.

Recommendation #12

We recommend the Montana Lottery establish an external evaluation process to ensure the security of AWI's computer system.

Computer Security Training

Computer systems are the center of Montana Lottery operations. Everything the Lottery does associated with its instant and on-line lotto games relies upon the secure operation of a computer system. Instant games rely upon the Lottery's Stratus system and on-line lotto games rely upon AWI's computer system located in Olympia, Washington. Consequently, it is important for Lottery security personnel to ensure there is appropriate security over both these systems. Security personnel should be trained in order to monitor the security over these systems and identify any security violations which may occur.

Security Personnel have Received Limited Computer Security Training

The director of security and the investigator have been responsible for the security over Lottery operations, including computer security, since the Lottery's inception in 1987. However, we found these individuals have received a minimal amount of training related to computer security even though their position descriptions require an understanding of computer security. The director of security has attended only one computer security training session and the investigator has never received training related to computer security.

Section 23-7-212, MCA, reflects the importance of having security personnel who are well-trained in all areas of Lottery security. This law delegates the responsibility for ensuring the security over the operation of the Lottery to the security department. This law also requires the director of security to be knowledgeable in computer security and be qualified by experience and training. Additionally, the director of security has designated the investigator as the system administrator over the Lottery's computer system. The responsibilities of a system administrator include monitoring the system for potential security violations and approving employee access to the system. Therefore, it is also essential the investigator have appropriate knowledge of computer security requirements through appropriate computer security training.

Lack of Training a Recurring Concern

Both our 1989 and 1991 security audits identified computer security as the major concern in Lottery security operations. Our 1991 security audit (90P-28A) recommended the Lottery develop and implement an appropriate training plan and program for security-related personnel. This recommendation was designed to make computer security training a priority of Lottery management. The Lottery has not yet formally developed or implemented a computer security training plan or program for security personnel.

Lottery management has established two goals and objectives which relate directly to its employees and the security of its games. One goal aims to improve employee job performance and the other is to maintain the security of the Lottery. These goals and objectives indicate Lottery management is aware of the importance of training and a secure Lottery. We believe providing security personnel with additional computer security training would help the Lottery meet these goals. We also believe training would help the Lottery maintain security over its computer system.

Summary

Since Lottery operations are so dependent upon computer systems, it is important for security personnel to fully understand computer security. This can only occur through proper training of security personnel and continuous use of the skills learned. It is important for the Lottery to be proactive instead of reactive in the area of computer security. This includes ensuring security personnel receive computer security-related training. Security personnel must be able to identify potential problems before these problems could adversely affect Lottery operations. A better understanding of computer security would have helped security personnel identify the security weaknesses we identified. This understanding could also help security personnel improve the administration of the data processing security group by focusing the groups attention on computer security issues.

Developing and implementing a training plan and program would help the Lottery design the most efficient means of

providing computer security training to security personnel. Training plans should include the goals the Lottery wishes to attain and the types of training which may help the Lottery achieve these goals. Training programs should include the basics of electronic data processing and more specific computer security training so security staff understand computer operations and security measures necessary to properly protect the Lottery's resources.

Recommendation #13

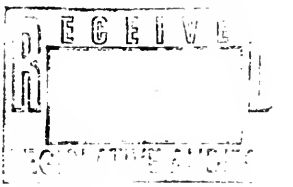
We recommend the Montana Lottery establish and implement a computer security training plan and program for security personnel.

Agency Response

Charmaine D. Murphy, Director

Montana Lottery

Marc Racicot, Governor



March 31, 1994

Joe F. Murray
Senior Performance Auditor
Office of the Legislative Auditor
State Capitol
Helena, MT 59620

Dear Joe,

Thank you for the opportunity to respond to the final report on Montana Lottery Security.

In general, the Montana Lottery agrees with the audit findings and recommendations. In several areas the Lottery has taken action to correct problems which became apparent during that audit time period. In those areas it is our desire to maintain the controls we have already put into place. In other instances it became apparent that new guidelines were needed. Finally, through the audit process, we found areas where strengthening of existing policies and practices are needed.

The following is our response to specific recommendations of your audit team.

Recommendation #1
We recommend the Montana Lottery:

A. Maintain the control system which limits warehouse access to authorized employees.

B. Enforce the requirement all non-security and non-warehouse personnel sign the access log when entering and leaving the warehouse.

We concur with both of your recommendations. These recommendations involve a correction which took place during the audit. We believe that our practice as it currently exists fully satisfies what you intended in the recommendation.

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Recommendation #2

A. Create a guideline for acceptable weight ranges for Montana Cash drawing balls.

We concur with your recommendation to create a guideline for acceptable weight ranges for Montana Cash drawing balls. We will develop the guideline and have it in operation by July, 1994.

B. Monitor and document the information provided by Weights and Measures to determine if weights fall within this acceptable weight guideline.

We concur with your recommendation and will monitor and document the Weights and Measures information based on the guidelines which we will have in place by July, 1994.

Recommendation #3

We recommend the Montana Lottery eliminate the flow of water in the water lines above the computer room.

We concur with your recommendation. We have installed a shut off valve well away from the computer area. This valve could not be located in a secure area because it would have stopped water flow to a drinking fountain in the office area. The valve is sealed to prevent opening and to detect tampering.

Recommendation #4

We recommend the Montana Lottery develop a checklist to assist security in testing all security devices, including the smoke alarm and fire extinguisher.

We concur with your recommendation. We have developed a checklist of all security related devices. We began using that form as a guide in our January 1994 equipment survey.

Recommendation #5

We recommend the Montana Lottery retain documentation authorizing access to Stratus operating and ILS application files.

We concur with your recommendation. Through the audit

we recognized the need for the retention of the authorization forms and we are now keeping this form as documentation.

Recommendation #6

We recommend the Montana Lottery:

A. Establish a system for reviewing employee access privileges to ILS applications and document these reviews.

We concur with your recommendation. We currently review employee access privileges when employees leave or changes occur that make it apparent that a review is necessary. We will establish a system to continue the reviews we currently perform and to review, at specific intervals, our employee access privileges and document these reviews. This will be in place by July of 1994.

B. Revoke the access privileges to ILS application for those users not requiring it in the performance of their job duties.

We concur with your recommendation. The access privileges not needed in the performance of duties have been removed. We add that these accesses were not given indiscriminately. The practices and responsibilities have changed and this allows us to remove the questioned access.

Recommendation #7

We recommend the Montana Lottery develop a formal, tested backup and recovery plan that includes an alternate site or equipment replacement agreement.

We concur with your recommendation. We will have a disaster recovery plan including an alternate site agreement in place by March, 1995.

Recommendation #8

We recommend the Montana Lottery:

A. Perform a review of hard copy retailer license files prior to license issuance in accordance with internal security policies.

B. Establish a policy for centralized review of all changes to hard copy retailer files and information on the computer system.

C. Review existing hard copy retailer files and computer information for accuracy.

We concur with recommendations A, B, & C. We have completed a check list which documents the hard copy review of retailer license files. By December, 1994 we will review all existing hard copy files, updating information for accuracy. Within the same time period a policy of review of changes to the hard copy and the system will be accomplished.

Recommendation #9

We recommend the Montana Lottery develop for the data processing security group:

A. A mission and specific goals and objectives for conducting an on-going comprehensive security review of the computer system.

B. A written plan on how to meet the mission and goals and objectives.

We concur with your recommendations. We will develop a mission statement and specific goals and objectives along with a plan to meet the mission and goals and objectives. This will be completed by September of 1994.

Recommendation #10

We recommend the Montana Lottery require:

A. The AWI disaster recovery plan include Montana Lottery operations.

We concur with your recommendation. In talking with the AWI Olympia project manager, I was informed that he believes the plan is complete. The person doing the final review of the plan is out of state and unavailable. To be sure that all is correct in the review process, AWI asked until May of 1994 for completion.

B. The AWI disaster recovery plan include a formal agreement for establishing an alternate computer facility.

We concur with your recommendation. In talking with the AWI Olympia project manager, I was told that they have looked at several options for an alternate facility in case of disaster. AWI is now part of a strategic partnership with Electronic Date Systems, Inc.. EDS has several offices in the Seattle area. AWI is now looking for facilities through EDS to meet their needs. AWI believes they can have a formal agreement by August, 1994.

Recommendation #11

We recommend the Montana Lottery:

A. Approve AWI employee access rights to Lottery OLMT applications based on the requirements of employee position description.

B. Review the reasonableness of OLMT access on a periodic basis.

We concur with both recommendations. Prior to the audit Montana Lottery Security had the approval responsibilities for our staff on OLMT. We also had the AWI employee access information available to us. During the audit we began reviews of AWI employee access needs based on job requirements. That will continue with a further review on a periodic basis.

Recommendation #12

We recommend the Montana Lottery establish an external evaluation process to ensure the security of AWI's computer system.

We concur with your recommendation. The Montana Lottery will develop a process of external evaluation concerning AWI's computer system and have it in place by September, 1994.

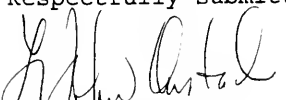
Recommendation #13

We recommend the Montana Lottery establish and implement a computer security training plan and program for security personnel.

We concur with your recommendation. We will adopt a computer security training program and have it in operation by January of 1995.

Thank you again for the opportunity to respond. We hope that we can count on you and the resources of your office to answer questions and provide additional information. We appreciate the constructive manner in which this audit was conducted. If you have questions regarding any of our comments please don't hesitate to call me.

Respectfully submitted,



L. John Onstad
Director of Security
Montana Lottery

cc: Charmaine Murphy, Director